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Jawaharlal Nehru

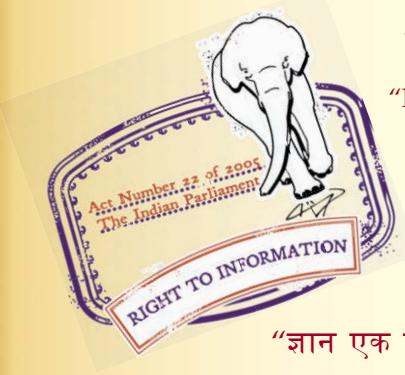
“Step Out From the Old to the New”

IS 4218-2 (2001): ISO General Purpose Metric Screw Threads,  
Part 2: General Plan [PGD 20: Engineering Standards]

“ज्ञान से एक नये भारत का निर्माण”

Satyanaaranay Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartṛhari—Nītiśatakam

“Knowledge is such a treasure which cannot be stolen”





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आई० एस० ओ० सामान्य प्रयोजन की मीटरी पेंच चूड़ियाँ  
भाग 2 सामान्य योजना  
( दूसरा पुनरीक्षण )

*Indian Standard*

ISO GENERAL PURPOSE METRIC SCREW THREADS  
PART 2 GENERAL PLAN  
( *Second Revision* )

ICS 21.040.01

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BUREAU OF INDIAN STANDARDS  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

## NATIONAL FOREWORD

This Indian Standard ( Part 2 ) ( Second Revision ) which is identical with ISO 261 : 1998 'ISO general purpose metric screw threads — General plan' issued by the International Organization for Standardization ( ISO ) was adopted by the Bureau of Indian Standards on the recommendation of the Engineering Standards Sectional Committee and approval of the Basic and Production Engineering Division Council.

This standard was originally issued in 1967 and subsequently revised in 1976. The first revision was based on ISO 261 : 1973. This second revision has been issued by adopting ISO 261 : 1998.

This Committee, responsible for preparation of Indian Standards on Screw Threads, decided to revise all the six parts of IS 4218 in the following manner:

- a) The revised IS 4218 to be published in four parts, that is ( Parts 1 to 4 ) adopting ISO 68-1 : 1998, ISO 261 : 1998, ISO 724 : 1993 and ISO 262 : 1998 respectively covering the various requirements of ISO general purpose metric screw threads except tolerances;
- b) For tolerances on ISO general purpose metric screw threads a new standard, that is, IS 14962 to be published in five parts, that is ( Parts 1 to 5 ) by adopting ISO 965 ( Part 1 ) : 1998, ISO 965 ( Part 2 ) : 1998, ISO 965 ( Part 3 ) : 1998, ISO 965 ( Part 4 ) : 1998 and ISO 965 ( Part 5 ) : 1998 respectively; and
- c) After the publication of above standards IS 4218 ( Part 5 ) : 1979 and IS 4218 ( Part 6 ) : 1978 stand withdrawn.

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. In the adopted standard, certain conventions are not identical to those used in Indian Standards. Attention is especially drawn to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a full point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their place are listed below along with their degree of equivalence for the editions indicated:

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Equivalence</i>
ISO 68-1 : 1998	IS 4218 ( Part 1 ) : 2001 ISO general purpose metric screw threads: Part 1 Basic profile ( <i>second revision</i> )	Identical
ISO 262 : 1998	IS 4218 ( Part 4 ) : 2001 ISO general purpose metric screw threads: Part 4 Selected sizes for screws, bolts and nuts ( <i>second revision</i> )	do
ISO 724 : 1993	IS 4218 ( Part 3 ) : 1999 ISO general purpose metric screw threads: Part 3 Basic dimensions ( <i>second revision</i> )	do
ISO 965-1 : 1998	IS 14962 ( Part 1 ) : 2001 ISO general purpose metric screw threads — Tolerances: Part 1 Principles and basic data	do
ISO 5408 : 1983	IS 10587 : 1983 Terminology for screw threads	Modified

*Indian Standard*  
**ISO GENERAL PURPOSE METRIC SCREW THREADS**  
**PART 2 GENERAL PLAN**  
**( Second Revision )**

## **1 Scope**

This International Standard specifies ISO general purpose metric screw threads (M) having basic profile according to ISO 68-1. Basic dimensions are given in ISO 724. For tolerances see ISO 965-1.

## **2 Normative references**

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 68-1:1998, *ISO general purpose screw threads — Basic profile — Part 1: Metric screw threads*.

ISO 262:1998, *ISO general purpose metric screw threads — Selected sizes for screws, bolts and nuts*.

ISO 724:1993, *ISO general purpose metric screw threads — Basic dimensions*.

ISO 965-1:1998, *ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data*.

ISO 5408:1983, *Cylindrical screw threads — Vocabulary*.

## **3 Definitions**

For the purposes of this International Standard, the definitions given in ISO 5408 apply.

## **4 Designation**

A screw thread in conformity with this International Standard shall be designated according to ISO 965-1.

## 5 Choice of diameter and pitch

5.1 Choose, for preference, diameters in column 1 of table 2 and, if necessary, in column 2 and then in column 3.

Diameter 35 mm, and pitch 1,25 mm of diameter 14 mm shall be used only for the special cases indicated in the footnotes.

Pitches shown in parentheses are to be avoided as far as possible.

5.2 The words "coarse" and "fine" are given in order to conform to usage. No concept of quality shall, however, be associated with these words.

It shall be understood that the "coarse" pitches are the largest metric pitches used in current practice.

5.3 For the diameter (or the diameter range) selected, choose one of the pitches shown on the corresponding line (or lines).

5.4 If screw threads finer than those appearing in table 2 are found necessary, only the following pitches shall be used:

3 mm; 2 mm; 1,5 mm; 1 mm; 0,75 mm; 0,5 mm; 0,35 mm; 0,25 mm; 0,2 mm

When selecting such pitches, take into account the fact that there is increasing difficulty in complying with tolerances as the diameter is increased for a given pitch. It is suggested, that diameters larger than those shown in table 1 should generally not be used with the pitches indicated.

Table 1 — Maximum nominal diameter

Dimensions in millimetres

Pitch	Maximum nominal diameter
0,5	22
0,75	33
1	80
1,5	150
2	200
3	300

Table 2 — Nominal diameter/pitch

Dimensions in millimetres

Nominal diameter $D, d$			coarse	Pitch $P$									
Col. 1 1st choice	Col. 2 2nd choice	Col. 3 3rd choice		fine					coarse				
			3	2	1,5	1,25	1	0,75	0,5	0,35	0,25	0,2	
1			0,25										0,2
1,2	1,1		0,25										0,2
	1,4		0,25										0,2
			0,3										0,2
1,6			0,35										0,2
2	1,8		0,35										0,2
			0,4										0,25
2,5	2,2		0,45										0,25
3			0,45										0,35
			0,5										0,35
4	3,5		0,6										0,35
	4,5		0,7										0,5
			0,75										0,5
5		5,5	0,8										0,5
6			1										0,5
8	7		1										0,75
		9	1,25										0,75
			1,25										0,75
10			1,5										0,75
12		11	1,5										0,75
			1,75										0,75
16	14		2										0,75
		15	2										0,75
			2										0,75
20	18	17	2,5										0,75
			2,5										0,75
24	22		2,5										0,75
		25	3										0,75
			2										0,75
	27	26	3										0,75
		28	2										0,75
			2										0,75
30		32	3,5	(3)	2	1,5							0,75
		33	3,5	(3)	2	1,5							0,75
36		35 <sup>b</sup>	4	3	2	1,5							0,75
		38	4	3	2	1,5							0,75
		39	4	3	2	1,5							0,75

(continued)

Table 2 (continued)

Dimensions in millimetres

Nominal diameter $D, d$			coarse	Pitch $P$					
Col. 1 1st choice	Col. 2 2nd choice	Col. 3 3rd choice		8	6	4	3	2	1,5
42	45	40	4,5			4	3	2	1,5
			4,5			4	3	2	1,5
48	52	50	5			4	3	2	1,5
			5			4	3	2	1,5
56	58	55	5,5			4	3	2	1,5
			5,5			4	3	2	1,5
64	62	60	5,5			4	3	2	1,5
			6			4	3	2	1,5
72	76	65	6			4	3	2	1,5
			6			4	3	2	1,5
80	82	78			6	4	3	2	1,5
					6	4	3	2	1,5
90	95	85			6	4	3	2	
					6	4	3	2	
100	105				6	4	3	2	
					6	4	3	2	
110	115				6	4	3	2	
					6	4	3	2	
125	120			8	6	4	3	2	
					6	4	3	2	
140	130	135		8	6	4	3	2	
				8	6	4	3	2	
150	145			8	6	4	3	2	
				8	6	4	3	2	
160	155			8	6	4	3		
				8	6	4	3		
170	165			8	6	4	3		
				8	6	4	3		
180	175			8	6	4	3		
				8	6	4	3		
190	185			8	6	4	3		
				8	6	4	3		
200	195			8	6	4	3		

(continued)

Table 2 (concluded)

Dimensions in millimetres

Nominal diameter $D, d$			coarse	Pitch $P$					
Col. 1	Col. 2	Col. 3		8	6	4	3	2	1,5
1st choice	210	205			6	4	3		
		215		8	6	4	3		
					6	4	3		
220		225		8	6	4	3		
		230			6	4	3		
				8	6	4	3		
240		235			6	4	3		
		245		8	6	4	3		
					6	4	3		
250	260	255		8	6	4	3		
					6	4			
				8	6	4			
260		265			6	4			
		270		8	6	4			
		275			6	4			
280		285		8	6	4			
		290			6	4			
				8	6	4			
	300	295			6	4			
				8	6	4			

a Only for spark plugs for engines.

b Only for locking nuts for bearings.

(Continued from second cover)

This standard (Part 2) covers the 'General plan for ISO general purpose metric screw threads'. The other three parts of standard are listed below:

IS No.	Title
IS 4218 (Part 1) : 2001/ ISO 68-1 : 1998	ISO general purpose metric screw threads: Part 1 Basic profile (second revision)
IS 4218 (Part 3) : 1999/ ISO 724 : 1993	ISO general purpose metric screw threads: Part 3 Basic dimensions (second revision)
IS 4218 (Part 4) : 2001/ ISO 262 : 1998	ISO general purpose metric screw threads: Part 4 Selected sizes for screws, bolts and nuts (second revision)

Indian Standards published on tolerances for ISO general purpose metric screw threads are listed below:

IS No.	Title
IS 14962 (Part 1) : 2001/ ISO 965-1 : 1998	ISO general purpose metric screw threads — Tolerances: Part 1 Principles and basic data
IS 14962 (Part 2) : 2001/ ISO 965-2 : 1998	ISO general purpose metric screw threads — Tolerances: Part 2 Limits of sizes for general purposes external and internal screw threads — Medium quality
IS 14962 (Part 3) : 2001/ ISO 965-3 : 1998	ISO general purpose metric screw threads — Tolerances: Part 3 Deviations for constructional screw threads
IS 14962 (Part 4) : 2001/ ISO 965-4 : 1998	ISO general purpose metric screw threads — Tolerances: Part 4 Limits of sizes for hot-dip galvanized external screw threads to mate with internal screw threads tapped with tolerance position H or G after galvanizing
IS 14962 (Part 5) : 2001/ ISO 965-5 : 1998	ISO general purpose metric screw threads — Tolerances: Part 5 Limits of sizes for internal screw threads to mate with hot-dip galvanized external screw threads with maximum size of tolerance position h before galvanizing

In reporting the results of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values (revised)'.

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

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## **Amendments Issued Since Publication**

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